

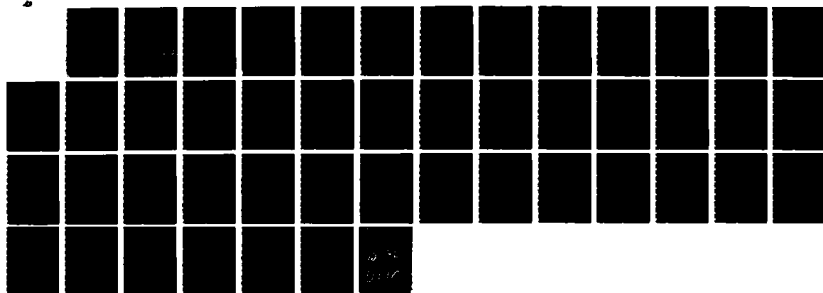
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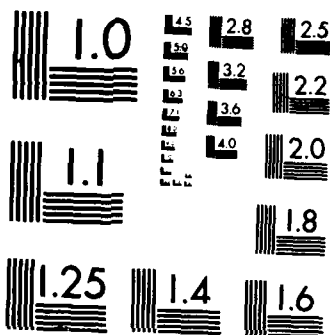
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Operational Sustainment:
Defining the Realm of the Possible

by

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Fort Leavenworth, Kansas

8 May 1986

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The study concludes that the AirLand Battle doctrinal description of operational sustainment provides a valid focus for logistics at the operational level of war. Deception, however, should not be included as a separate major functional element for operational sustainment, but rather as an important system characteristic that has application in each of operational sustainment's major functional areas.

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Defining the Realm of the Possible

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ABSTRACT

OPERATIONAL SUSTAINMENT: Defining the Realm of the Possible, by Major Brian W. Davenport, USA, 39 pages.

This study examines the difference between operational and tactical sustainment in AirLand Battle doctrine. The major focus of the study is to determine if operational sustainment is fully encompassed by its AirLand Battle doctrinal description which includes as major functional elements the following: (1) organization of the theater base, (2) establishment/adjustment of LOC's, (3) management of sustainment priorities, (4) force expansion and reconstitution, and (5) deception.

The U.S. Army's FM 100-5, Operations states that "sustainment is fully vital to success at both the operational and tactical levels of war." From this operational-tactical split embodied in the AirLand Battle doctrine, operational sustainment emerges as a distinct U.S. Army logistical concept. However, despite the newness of the term, the functions of operational sustainment have long been required of armies in conducting war. The study uses Rommel's efforts in North Africa in 1941-42 and the Russian efforts at Kursk in 1943 to provide two case studies in which sustainment activities at the operational level of war played major roles.

The study concludes that the AirLand Battle doctrinal description of operational sustainment provides a valid focus for logistics at the operational level of war. Deception, however, should not be included as a separate major functional element for operational sustainment, but rather as an important system characteristic that has application in each of operational sustainment's major functional areas.

Table of Contents

	Page
Section I	
Introduction.....	1
Purpose.....	3
Significance of the Study.....	3
Methodology.....	7
Section II	
Operational vs. Tactical Sustainment..	8
Organization of the Theater Base.....	12
Establishment/Adjustment of LOC's.....	13
Management of Sustainment Priorities..	13
Force Expansion and Reconstitution....	15
Deception.....	16
Section III	
Operational Sustainment Case Studies..	17
Rommel in North Africa.....	18
The Soviets at Kursk.....	23
Section IV	
Conclusions.....	29
Endnotes.....	32
Bibliography.....	36

SECTION I

Introduction

The first and foremost mission of any logistical system is to sustain the fighting capabilities of the combat force. U.S. Army doctrine has long recognized the importance of the sustainment function and its role as a key element in the generation, maintenance, and application of combat power. Logistical planning and execution is by necessity tied to an army's concept of how to conduct war. With the 1982 publication of FM 100-5, Operations, the U.S. Army introduced its AirLand Battle doctrine, which incorporated the concept of war at the operational level.¹ It is from this operational level focus that the corresponding logistical concept of operational sustainment emerges.²

The problem at this time, however, is that the concept of operational sustainment within the logistical community is still only emerging, while on the G-3, operational side of the house, the Army is rapidly coming to grips with what is meant by conducting war at the operational level. This problem is clearly manifested by a look at two complementary publications: FC 100-16-1, Theater Army, Army Groups and Field Army Operations, dated 18 December 1984; and FM 100-16, Support Operations: Echelons Above Corps, dated 16 April 1985. The Field Circular, focusing on the operational level of war at echelons above corps, deals with the design, organization, and conduct of campaigns and major operations

within a theater of war. FM 100-16, on the other hand, does not take the operational level of war for its perspective. The Field Manual's focus is on describing the organization and functions of combat support (CS) and combat service support (CSS) operations. It also examines support considerations that might be applicable for forward deployed forces in a theater having an established theater support base, and support considerations for the alternate case of forces in contingency operations where the theater support base must be developed. The critical shortfall of FM 100-16 is that in dealing with echelons above corps, it does not include any discussion of theater support within the operational level context of campaigns or major operations.

As AirLand Battle doctrine teaches commanders to think in terms of both the operational and tactical levels of war, logistical planners and operators must become no less capable of the task. The inability of commanders and logisticians to think and act along congruent lines could have disastrous results in future operations. As Clausewitz observed, "the theory of warfare tries to discover how we may gain a preponderance of physical forces and material advantage at the decisive points."³ A commander must understand the capabilities of the logistical system that is at his disposal if he is to achieve the necessary concentration of forces at the time and place he deems critical. The logistician, in turn, must clearly understand the commander's intent to be able to distribute and position available

resources effectively in support of the commander's overall concept of operation. Commanders and logisticians operating with a common doctrinal frame of reference are more likely to produce the synergy of effort that will lead to success on the battlefield.

Purpose

The purpose of this monograph is to examine the difference between sustainment at the operational and tactical levels of war, and to determine the adequacy of the current doctrinal description of operational sustainment. AirLand Battle doctrine describes operational sustainment as consisting of the following major elements: (1) organization of the theater base, (2) establishment/adjustment of lines of communication (LOCs), (3) management of sustainment priorities, (4) force expansion and reconstitution, and (5) deception.⁴ This study will attempt to determine if operational sustainment is in fact limited to and fully encompassed by the five major elements detailed above.

Significance of the Study

The concept of the operational level of war is a precept that is central to the understanding of AirLand Battle doctrine. The operational level of war incorporates activities that traditionally have been viewed as belonging to the strategic or tactical realms. This study looks at the critical function of sustainment in an attempt to do the

following: (1) provide a clear understanding of what is meant by the term "operational sustainment"; and (2) validate the major elements included by AirLand Battle in the doctrinal concept of operational sustainment or show how the major elements should be modified.

It should be noted that despite "operational sustainment" being relatively new logistical terminology for the U.S. Army, the functions embodied in operational sustainment have long been required of armies to wage war successfully. Both good and bad examples of operational sustainment can be found in Napoleon's campaigns, in our own Civil War, or for that matter in most wars involving major combatants in the 19th and 20th centuries. Warfare during this period was normally categorized within the framework of tactics and strategy. Tactics usually referred to the manner in which forces and weapons were to be employed immediately prior to, during, and after engagements. Strategy carried a broader connotation, referring to the manner in which the political, military, economic, or social resources of a nation would be used and directed in the attainment of broad national goals or objectives.

In Napoleon's time, military strategy and tactics were focused on the climactic battle. Logistics was viewed as the "art of moving armies and keeping them supplied."⁵ Logistical functions were considered essential, but as Clausewitz wrote, it was only one of many "preparatory activities...to the actual conduct of war."⁶ Over time the

ability to view logistics as a preliminary activity, separate from battle, became increasingly more difficult. As the size of armies grew larger and the technological means to wage war evolved, the fields of battle expanded to encompass operations that spanned entire theaters of war. Under these circumstances, military professionals were unable to postulate wars in which the theater of war's strategic objective could be achieved in one climactic battle. To gain the desired strategic end (often the destruction of the enemy's armed forces) military commanders had to develop and execute what amounted to campaign plans. These plans consisted of a sequential series of related actions designed to have more than a simple cumulative effect and to culminate in gaining the theater strategic goal. It is within these campaign plans that one finds the origins of the operational level of war.

Prior to World War II, instruction at the Command and General Staff College (CGSC) recognized the operational level of war, but used the term "strategy" to identify it.⁷ A review of the 1935-1936 instructional pamphlet, The Principles of Strategy, reveals a remarkably parallel vision between the "then and now view" of the structure of warfare. In both cases, three levels of war are featured: conduct of war, which we now term strategy; strategy, which we now call operational art; and tactics, a term whose meaning has not changed.⁸ During World War II, operational level campaign planning, which had been taught at Leavenworth prior to the

war, had a major impact on the direction of U.S. Army operations in both the European and Pacific theaters of war.

If this was the case and the Army recognized the operational level of war prior to World War II, then why are we not better practitioners of the operational art today? At least part of the answer lies in Army doctrine as it has progressed since World War II. Each decade since the end of the war produced a strategic perception that contributed to reducing operational thinking to obscure levels. In the 1950's, reliance on a concept of massive retaliation on the nuclear battlefield obviated the need, in the minds of many, for the Army to be able to sequence major ground operations or land campaigns. In the 1960's, Vietnam involved the United States in a limited war in which we tried to achieve our strategic ends by utilizing overwhelming tactical superiority. The inability of our tactical gains to produce strategic results led to an erosion of confidence in military methods and a gradual decline in public support for the war. The first step in operational planning is to have clearly defined strategic ends. It is not certain, in the minds of many of the Vietnam War participants, whether U.S. strategic ends were ever clearly delineated and matched in some achievable fashion to military capabilities." In the 1970's, the Army's watchwords became "win the first battle." The immediacy of this goal necessarily focused the attention of military planning to the tactical battle, away from operational considerations. The net result of the past three

decades has been to diminish the importance that the Army once placed on being able to function at the operational level of war. AirLand Battle firmly reestablishes the doctrinal focus back upon the operational level of warfare.

Critical to any planned operation within a theater of war is the ability to establish a dependable system of supply. Effective sustainment operations may not win the war, but history is replete with examples where ineffective sustainment has lost the war. With the AirLand Battle doctrinal focus introducing the concept of operational sustainment, it is incumbent upon the logistician to develop an understanding of the nature of both operational and tactical sustainment. Such an understanding of sustainment is fundamental to the logistician's ability to organize and execute support functions in keeping with his commander's operational or tactical plans.

Methodology

In order to focus on the adequacy of the AirLand Battle doctrinal concept for operational sustainment, this study will address the following questions: What distinguishes operational from tactical sustainment? What functional parallels can be drawn from World War II experiences and AirLand Battle doctrine, using Rommel's operations in North Africa and the Russian's counteroffensive at Kursk? Does AirLand Battle doctrine correctly identify and fully encompass operational sustainment when it describes it as

consisting of five major elements?

Section II

Operational vs. Tactical Sustainment

In the May 1986 revision to FM 100-5, Operations, sustainment is cited as being "vital to success at both the operational and tactical levels of war."¹ It is from this split view of the sustainment function that questions arise. What is operational sustainment, and how does it differ from sustainment conducted at the tactical level?

Before examining the differences in operational and tactical sustainment, one should consider some important characteristics common to both. Both levels are concerned with transporting, protecting, and employing the logistical resources necessary to man, arm, fuel, and fix the combat force. Both levels of sustainment require logistical personnel who can organize and control limited resources to provide uninterrupted and responsive support that is fully integrated into the commander's operational plan. These same logisticians must also be able to anticipate and react to changes in requirements which may require improvisation to produce solutions to unforeseen support problems. The mission tasks inherent in operational and tactical sustainment are further complicated by the resource-hungry nature of modern equipment, and the lethality and range of technologically advanced weapons systems that proliferate the

battlefield. Sustainment must be able to meet a commander's support needs by insuring "his combat force has the resources to fight effectively at the outset of the battle and to fight continuously thereafter."² Sustainment activities at all levels of organization are fundamental to a commander's ability to project his unit's combat power. Finally, a common characteristic in sustainment is the need for the commander to have a full appreciation for the risks imposed by logistical limitations on his planned operations. With an accurate understanding and assessment of the risks, a commander will be able to get the most out of his limited resources.

As seen above, operational and tactical sustainment have several common functional responsibilities. AirLand Battle doctrine recognizes this relationship, but at the same time it also makes a clear distinction in the scale, scope, and orientation in sustainment at the operational and tactical level. The definition for each is as follows:

Operational sustainment comprises those logistical and support activities required to sustain campaigns and major operations within a theater of operations. Operational sustainment extends from the theater sustaining base or bases which link strategic to theater support functions, to the forward CSS units and facilities organic to major tactical formations.³

Tactical sustainment includes all the CSS activities necessary to support battles and engagements and the tactical activities which precede and follow them. Tactical units from corps to battalion are sustained by organic and supporting CSS which provide

for their routine requirements and which can be reinforced to give them additional strength for operations.⁴

In short, operational sustainment involves providing the wherewithal needed to conduct campaigns; tactical sustainment is concerned with the near term support of battles or engagements.

Tactical sustainment's concern with the immediate battle extends throughout tactical operations designed to (1) prepare the force for combat; (2) continue support to committed units during the fight; and (3) rebuild the force capability following the fight.⁵ Tactical sustainers carry out their support functions as far forward on the battlefield as is desirable and possible. In comparison with operational sustainment, support functions within tactical sustainment are conducted on a much smaller scale and scope. Another characteristic difference revolves around the fluidity and rapidity with which the tactical situation can change. Tactical sustainment requires a built-in flexibility that can provide timely and effective response to dynamic tactical situations. These actions may range from reinforcing a deteriorating situation to the exploitation of time-sensitive tactical opportunities. Tactical sustainment is oriented on the user end of the support pipeline. The effectiveness of tactical sustainment is in large part predetermined by how well the operational sustainment supporting network has been established within the theater.

Operational sustainment capability within a theater of

war provides the foundation upon which campaign plans and major operations are developed and executed. The title of this monograph, "Operational Sustainment: Defining the Realm of the Possible," is a reference to the impact logistical constraints have on shaping the bounds within which operations having various risk levels fall. Commanders have been at times frustrated by the domination of logistics in defining campaign courses of action for a theater of war. Consider this frustration of commanders as lamented in the following quotations:

What I want to avoid is that my supplies should command me.⁶

Comte de Guibert: Essai General de la Tactique, 1770

If [the general] allows himself to be guided by supply officers, he will never move, and his expeditions will fail.⁷

Napoleon I, Maxims of War, 1831

If quartermasters and civilian officials are left to take their own time over the organization of supplies, everything is bound to be very slow. Quartermasters often tend to work by theory and base all their calculations on precedent, being satisfied if their performance comes up to the standard which this sets. This can lead to frightful disasters when there is a man on the other side who carries out his plans with greater drive and thus greater speed.⁸

Erwin Rommel: The Rommel Papers, 1953

The major elements of operational sustainment as described within AirLand Battle doctrine include: (1) organization of the theater base; (2) establishment/

adjustment of LOCs; (3) management of sustainment priorities; (4) force expansion and reconstitution; and (5) deception. A short discussion of each of these elements follows.

Organization of the Theater Base

The organization of the theater base involves the basic analysis of the theater's inherent support capability and the available capacity for sustaining projected theater force structures. The organization should be driven by support requirements identified in development of the theater commander's campaign plan. The initial decision on where to locate the theater's sustainment base will impact on providing support to current and future operations. The sustainment base supporting a theater army is a massive collection of logistical organizations with limited mobility. The key nodes of air, sea, and land LOCs, once established, take considerable time and effort to adjust. Major factors that a commander must balance in his selection of the theater base include: (1) his overall strategic objective and his estimate of the military operations and forces he will use in its accomplishment; (2) access to strategic air and sea LOCs and their connection to the theater base and in-theater land LOCs; (3) vulnerability to enemy ground and air strikes or to natural hazards; (4) availability and capacity of base facilities to store or transship stocks; (5) the in-theater standard of living levels to be provided in soldier support;

and (6) the ability to reduce sustainment as a center of gravity by utilizing more than one mode of support and multiple lines of operation."⁹

Establishment/Adjustment of LOCs

The establishment of in-theater LOCs evolves from the line of military operation and the positioning of the theater base. Consideration in the selection of LOCs include availability of road, rail, air, river, and pipeline networks and the logistical assets available to the commander to operate them. LOCs are subject to enemy interdiction and must be protected to insure the smooth forward flow of supplies. The fluid nature of the AirLand battlefield may require frequent readjustment of supporting LOCs. Logistical planners must anticipate these events and be prepared to shift support. Whether operating on interior or exterior lines, a critical factor is the time it takes one's own force to resupply in relation to the time it takes the enemy. As Mahan wrote, "Interior lines are lines shorter in time than those the enemy can use."¹⁰

Management of Sustainment Priorities

The management of sustainment priorities is another major element within operational sustainment. Given that the resources within a theater of war will always be limited, the commander who seeks to concentrate his forces at decisive points must allocate the resources he has available and

prioritize his efforts. The commander's priorities for the employment of resources evolve from a careful assessment of the risks entailed in his operational plans, as well as from a corresponding look at opportunity costs that are associated with each planned use of limited resources.

The management of sustainment priorities takes place in one of the most dynamic of all environments. The friction of war and the fluidity of the battle will combine to produce changes in the sustainment priorities of the commander. The changes in priorities that occur will be concerned with support afforded to particular units as well as adjustments in the types of supplies required to execute operations. For example, an initial emphasis on stockpiling ammunition for theater defensive operations may shift to an emphasis on fuel resupply as a result of a changeover to a theater offensive. The operational sustainment system must develop the ability to anticipate probable changes in support priorities and have the built-in flexibility to redirect support efforts when changes occur. Logisticians must routinely conduct the type of analysis that focuses on the impact which adjustments to priorities cause on (1) support unit relationships (both old and new); (2) methods to satisfy sustainment requirements during the movement of support units; (3) the adequacy of in-theater stockage levels to support current and future operations; and (4) the time required versus time available to effect the necessary shifts in support priorities. The sustainment goal in managing priorities is to minimize the

adverse impact caused by the change in priorities and to maintain the sustainment focus on those units and supplies deemed crucial to mission success.

Force Expansion and Reconstitution

Force expansion and reconstitution measures go to the heart of the sustainment challenge at the operational level. As increased numbers of combat forces are introduced within the theater, the requirements placed upon the theater support base mount. Commanders and logisticians must jointly insure that the growing sustainment needs remain within the theater's support capacity. The force structure ratio for combat, combat support, and combat service support units during force expansion within a theater is by no means a constant. The appropriate balance in "tooth-to-tail" is an elusive state which will depend in large part upon (1) the nature of the operation in process or to be conducted; (2) the availability and quality of the existing theater infrastructure versus that which must be provided or developed; and (3) the basic geographic condition, climate, and expanse of the theater.

Reconstitution efforts, defined as both unit regeneration and sustaining support in FM 100-16, require the logistician to be able to project operational loss rates.¹¹ Using these loss projections as planning factors, the logistician begins the process of moving replacement men and materiel forward. Great agility is required in

reconstitution efforts, for just as a lack of supplies and personnel can damage the combat effectiveness of a force, so too can poor projections by producing unnecessary supplies and personnel that clog the logistic pipeline and block the flow of resources actually needed.¹² Force expansion and reconstitution require logistical planning with foresight. At the operational sustainment level, the foundation of this foresight rests in knowing the theater sustainment capacity of what is on hand and what can be brought into theater, coupled with an understanding of the commander's intent in both current and future operations.

Deception

Deception is the last major functional element included in the AirLand Battle doctrinal description of operational sustainment. Deception refers to "action taken to create a false picture of friendly activities, preparations, and operations to support the commander's objectives."¹³ The goal of the deception effort is to have the enemy's reliance on the false picture work to his detriment while working to our advantage. Sustainment activities often serve as a precursor of an army's intended action. By integrating sustainment into deception planning at the operational level, the commander and logistician are able to arrive jointly at a deception story which has acceptable resource costs and which will also support the commander's intent in on-going and future operations. The type of deception measures

employed will depend upon the amount of time and other resources available, and upon how credible the false story can be made to appear. Deception measures in sustainment operations include such actions as: (1) concealing storage sites and other logistic facilities in unconventional locations; (2) constructing dummy storage sites and then portraying these sites as being more important than the real storage sites; (3) altering routes, traffic flow, and unit positions to project a false concentration of forces or a new line of operation.¹⁴ Simply stated, "Success in war is obtained by anticipating the plans of the enemy, and by diverting his attention from our own designs."¹⁵

SECTION III

Operational Sustainment Case Studies

In ordinary affairs of life we base our actions, consciously or unconsciously, on experience. If we have no experience of our own, we use that of others. History is the record of this experience.¹

As war is the only laboratory for the art of war that we have, military men must seek authentic experience in history.²

The Principles of Strategy,
CGSC 1935-1936

The campaigns and major operations of World War II provide a rich historical base upon which current AirLand Battle doctrine concepts can be examined. The purpose of such examination is not to develop the military techniques with which we could better fight in a World War II scenario.

Rather, the purpose for examination is to (1) validate the constants that lead to success in warfare (the principles of war); and (2) project methods that, when blended with current technology and the fundamental principles of war, produce the sound doctrinal base with which to fight on future battlefields.

Rommel's efforts in North Africa in 1941-42 and Russian efforts at Kursk in 1943 provide two case studies in which sustainment activities at the operational level of war played major roles. These case studies were selected to provide a broad perspective on sustainment operations by looking at two different armies, in two different theaters of war, wherein one army experienced failure and the other success.

Rommel in North Africa

There is considerable debate over whether Rommel's military operations were in keeping with Germany's overall strategic interest within the theater. There is very little debate however about the brilliance of Rommel's ability as a tactical commander. His accomplishments, prior to his ultimate defeat, can be viewed as all the more remarkable in light of the British compromise of his message traffic,³ and the inadequacy of his supply support.⁴ It is this latter point dealing with poor supply that many observers, to include Rommel himself, have attributed as a principal cause for his failure in North Africa.⁵ Field Marshall Kesselring wrote, "...in the final analysis, everything, including the

possession of Africa, depended upon supply."⁶

North Africa as a theater of war was not very accommodating to an army in the field. Very little in the way of supplies could be obtained from local resources. Nearly all of Rommel's supplies had to be shipped to him from ports in Italy,⁷ and this difficulty was compounded by a lack of theater port capacity within reasonable proximity of the front.⁸ Major General F.W. von Mellenthin, in his book Panzer Battles, writes,

Even when our supplies did reach Africa, it was no easy matter to move them to the front, because of the great distance involved. It was 700 miles from Tripoli to Benghazi, 300 from Benghazi to Tobruk, yet another 350 from Tobruk to Alamein. When we were in Alamein many of our supplies had to be hauled 1,400 miles from Tripoli.⁹

Sustainment was also complicated by the demands of desert warfare which took its toll on both men and equipment.¹⁰

Von Mellenthin, in discussing Rommel, states that, "When he first came to Africa Rommel showed little interest in supply problems, but he came to realize that this question was absolutely fundamental."¹¹ The following passage from The Rommel Papers is lengthy, but it is key to understanding Rommel as a commander and his views on controlling the impact of supply on operations:

The reason for giving up the pursuit is almost always the quartermaster's growing difficulty in spanning the lengthened supply routes with his available transport. As the commander usually pays great attention to his quartermaster and

allows the latter's estimate of the supply possibilities to determine his strategic plan, it has become the habit for quartermaster staffs to complain at every difficulty, instead of getting on with the job and using their powers of improvisation, which indeed are frequently nil. But generally the commander meekly accepts the situation and shapes his actions accordingly.

When, after a great victory which has brought the destruction of the enemy, the pursuit is abandoned on the quartermaster's advice, history almost invariably finds the decision to be wrong and points to the tremendous chances which have been missed. In face of such a judgement there are, of course, always academic soldiers quick to produce statistics and precedents by people of little importance to prove it wrong. But events judge otherwise, for it has frequently happened in the past that a general of high intellectual powers has been defeated by a less intelligent but stronger willed adversary.

The best thing is for the commander himself to have a clear picture of the real potentialities of his supply organization and to base all his demands on his own estimate. This will force the supply staffs to develop their initiative, and though they may grumble, they will as a result produce many times what they would have done left to themselves.¹²

It is clear from this passage that Rommel was a commander who did not easily accept the assertion that his operation could not be supported. His ability to operate successfully beyond the edge of his culminating point may have led to (1) his own inability to recognize when he had passed his culminating point; and (2) to his superiors being unable to assess the true balance of opposing forces within the theater.¹³ After the decisive collapse at the second battle of El Alamein, Rommel was incredulous at both German and Italian authorities

looking "for fault not in the failure of supplies, not in our air inferiority, not in the [Hitler's] order to conquer or die at Alamein, but in the command and troops."¹⁴

Another area that Rommel had a hard time accepting, and one that led to strained relations between the Italian and German command structures in North Africa, dealt with the supply priorities afforded to each nation's army. Rommel's forces were dependent upon Italian shipping to bring supplies to theater ports. Rommel's dissatisfaction is evident in the following statement: "We had no influence whatever over the shipping lists, the ports of arrival or--most important--the proportion of German to Italian cargoes. In theory this was supposed to be a ratio of 1:1; in fact, it moved steadily to the German dissatisfaction."¹⁵ By not being able to control the port of entry for supplies that did arrive, Rommel believed his LOCs were at times needlessly extended, further complicating his transport problems.¹⁶

If one looks at the AirLand Battle doctrine concept for operational sustainment, and compares it with Rommel's situation in North Africa--Rommel strikes out on just about every count. In the organization of his theater base, he had inadequate port facilities, and was unable to maintain adequate levels of stocks in forward staging areas. In the establishment and adjustment of LOCs, Rommel's line of operation was dictated, for the most part, by the location of the ports and the nature of the terrain. In the case of North Africa the one primary road ran along the length of the

coast. Rommel supplemented this LOC by moving "supplies along the coast by small ships."¹⁷ In the management of sustainment priorities, Rommel knew what he needed, but was frustrated by being unable to set the priorities for either what was being shipped to him or for the port at which the supplies would be received. In addition, it appeared to Rommel that the Italian forces in theater were being supplied at the expense of German forces who were carrying the brunt of the fighting. Force expansion and reconstitution can be summed up by saying that although Rommel desired greater numbers of motorized forces, the theater base could not have been significantly expanded to support a larger force. Rommel's supply needs consistently fell short of sustaining his existing force or resupplying his losses. Finally, Rommel recognized the importance of deception,¹⁸ but since the British were able to decipher and read his message traffic,¹⁹ his efforts at deception had limited effect.

Having noted all of the above, one wonders how Rommel came as close as he did to winning the war in North Africa. His formula for success lay in seizing the initiative and managing time, as is evidenced by the following quotation:

One thing particularly evident had been the tendency of certain commanders to permit themselves unnecessary delays for refueling and restocking with ammunition, or for a leisurely overhaul of their vehicles, even when an immediate attack offered prospects of success. The sole criterion for a commander in carrying out a given operation must be the time he is allowed for it, and he must use all his powers of execution to fulfil the task

within that time.²⁰

Despite this admonishment of commanders who would allow supply to dictate the pace of their actions, Rommel, by the end of his tour in North Africa, had come to understand supply's fundamental importance:

The first essential condition for an army to be able to stand the strain of battle is an adequate stock of weapons, petrol and ammunition. In fact, the battle is fought and decided by the Quartermasters before the shooting begins.²¹

The Soviets at Kursk

The Battle of Kursk, in the summer of 1943, represented the clear ascendancy of the materiel might of the Soviet Armed Forces over their German counterparts on the Eastern Front. With this victory, the strategic initiative shifted to the Soviets and was to remain with them for the remainder of the war.²² General Ivanov, the chief of staff of the Voronezh Front in the Battle of Kursk, has written of the battle's "important contribution to the development of Soviet operational art. The experience gained in organizing and waging defensive and offensive operations on front and army scale was vastly responsible for the successes scored by Soviet troops conducting diverse strategic operations in the final phase of the war."²³ It is estimated that the offensive at Kursk "involved more than 1.3 million troops, over 3,500 tanks, over 20,000 guns and mortars, and 3,130 aircraft (including long range aviation)."²⁴ Owing

to an intelligence penetration of the German High Command, the Soviet leaders were confident that they knew in advance the German attack plans and troop concentrations.²⁵

This knowledge allowed the Soviets to concentrate their efforts from April-June 1943 in preparing elaborate defensive positions around Kursk and stockpiling the material resources to go over to a subsequent offensive.²⁶

Given the amount of men and equipment to be supported, the operational sustainment challenge facing the Russians was of immense proportions. LTG Antipenko, Logistic Chief of the Central Front in the Battle of Kursk, lays out the sustainment situation as follows:

The state of affairs on the Central and Voronezh fronts [the two fronts within the Kursk salient] made it essential to reorganize the supply system, radically to improve the assignment of troops to supply bases, increase the carrying capacity of the railways, repair motor roads and build new ones, stock up material resources, evacuate the wounded, and so on.²⁷

It is interesting to note the difference in positioning of the army and front supply bases for the two fronts within the Kursk salient. The Voronezh Front, occupying the southern portion of the salient, put its army support bases along railway lines 100-150 kilometers from the forward area with the front bases 350-400 kilometers from the front lines, well out of the harm's way.²⁸ The Central Front, on the other hand, positioned the army bases 40-50 kilometers away from the forward line with the front level bases only 70-100

kilometers to the rear.²⁹ Antipenko states that this forward positioning of supply bases came in for some criticism at later dates, but he believes that conditions justified the positioning. Antipenko points out that the Central Front's focus was on (1) defending if necessary to the last man; and (2) being in a position to take up speedily the counter-offensive.³⁰ Antipenko quotes the Central Front's Commander Rokossovsky as saying, "It's not the troop's job to think of the rear but the rear's job to think of the troops. The supply services must ensure maximum defensive system stability and not think of retreat."³¹

Key to Soviet sustainment was the massive effort that went into insuring adequate LOCs and modes of supply. At the start of the defensive, each front within the salient had two good roads on which supplies could be moved up while each army had one or two roads into their areas.³² Antipenko states that each front established one-way traffic on alternate supply routes leading into and out of their respective areas.³³ He also estimates that "2,000 kilometers of additional and parallel roads were built and 686 bridges with an aggregate length of more than 4,000 meters repaired or built in the Kursk bulge before the defensive battle."³⁴

Another factor that contributed to the Soviet operational sustainment flexibility at Kursk was found in the motor vehicle fleets at front level. The Central and Voronezh fronts each had truck-carrying capacity totaling

6,000 tons. The ammunition, fuel, and ration requirements for each front amounted to 5,000 tons daily. As long as the LOCs were extended within ranges of 100-150 kilometers, this amount of transportation satisfied the requirement.³⁵

Despite the difficulties imposed by supplying the two fronts in the Kursk salient, the Soviets succeeded in concurrent operational sustainment efforts to form a new reserve front (Steppe Front).³⁶ This force expansion added depth to the Soviet defenses and provided greater weight for the follow-on counteroffensive. Given the volume of supplies required, Antipenko is perhaps understating the difficulty when he states, "...the appearance of the new front complicated the functioning of the supply service. Nevertheless, it successfully coped with its task."³⁷

In the following quotation Antipenko makes a key point that signifies the importance of operational sustainment to Russian planning:

In the period of preparations for the Battle of Kursk the logistic chiefs of the fronts and armies were consistently kept informed of the situation. Without this it was impossible correctly to run the logistical services. Front commanders and chiefs of staff daily, and sometimes twice a day, informed logistic chiefs or their headquarters of all important changes in the enemy's behavior and of measures taken by our command.³⁸

Marshal Zhukov, the Soviet Deputy Supreme Commander-in-Chief, who had the responsibility for coordinating the actions of the fronts at Kursk, wrote, "I must say that

Generals Rokossovsky [the Central Front Commander] and Vatutin [the Voronezh Front Commander] personally dealt a lot with logistical issues, and this to a large extent explains why the troops were well supplied in time for battle."³⁹

Soviet deception measures were also in evidence at Kursk. Marshal Moskalenko, commander of the 40th Army of the Voronezh Front, describes these efforts in the following passage:

To mislead the enemy about the true direction of the main attack, we simulated concentration of one tank army, one field army and supporting artillery in the direction of Sumy... Powerful radio stations in this area received and transmitted false coded documents. There was heavy railway traffic, complete with unloading dummy tanks and guns, empty ammunition and ration boxes, empty oil barrels, etc. Tanks, guns, lorries, carts, and infantry columns were moving towards the frontline. At night all this was packed up and sent back east only to reappear in the simulated concentration area in the morning.⁴⁰

Moskalenko states that the Germans became increasingly interested in this activity and actually moved two divisions (one tank and one infantry) as a counter force into the Sumy area. Moskalenko believes the Germans were completely surprised when the Voronezh Front's true main effort went south toward Belgorod instead of west toward Sumy.⁴¹

In comparing Soviet performance at Kursk with the AirLand Battle doctrinal concept for operational sustainment, the Soviets earn high marks across the board. Their sustainment bases at front and army level were organized and

positioned to meet not only the immediate challenge of the defense but also the future requirements for a rapid transition to the offense. In the establishment and adjustment of LOCs, the Soviets dedicated massive efforts to the maintenance and construction of both the road and rail network supporting their lines of operation. Daily contact between the front commanders and their logistical chiefs insured that sustainment priorities were in keeping with both the commander's intent and the changing battlefield situation. Force expansion and reconstitution efforts enabled the Soviets not only to build a reserve front (Steppe) behind the Kursk salient, but also "to replace a considerable part of the losses...sustained in winter battles."⁴² Finally, Soviet deception measures were successfully incorporated into operations that misled the Germans on Soviet force concentrations and concealed the direction of the Soviet main effort.

The success of the Russians at Kursk marked the advance of Soviet sustainment principles into a fully-developed operational art. The ability to concentrate overwhelming materiel resources at decisive points on the battlefield became their trademark in subsequent operations.

SECTION IV

Conclusion

The purpose of this monograph was to examine the difference between sustainment at the operational and tactical levels of war, and to determine the adequacy of the current AirLand Battle doctrinal description of operational sustainment. From the preceding analysis, one should conclude that there is indeed a distinct difference between operational sustainment and tactical sustainment. This difference is found not only in the contrasting level of magnitude associated with each activity, but also by a marked difference in substance. Tactical sustainment deals with the best use of capabilities that are fairly well defined for combat service support unit assigned to corps and below. It is concerned with delivering near term support to battles and engagements. Operational sustainment, on the other hand, is less well defined, with the generation of its logistical force structure being based on the particular requirements of the theater being supported. It deals with those sustainment functions necessary to support campaigns or major operations.

As to whether the AirLand Battle doctrinal description of operational sustainment is adequate, it may be overly adequate. Consider the five major functional elements, currently described as (1) organization of the theater base; (2) establishment/adjustment of LOCs; (3) management of sustainment priorities; (4) force expansion and

reconstitution; and (5) deception. The first four elements describe components or stages that comprise a complete operational sustainment system. The system would not function well missing any one of these four elements. The fifth element, deception, is an important system characteristic that has application within each of the first four elements, but it does not comprise by itself an element critical to the functioning of the system as a whole.

At the operational level of war the commander must be able to link together tactical outcomes in such a manner as to achieve the strategic aim. This exercise of the operational art requires that the commander identify "(1) what military conditions must be produced in the theater of war...to achieve the strategic goal; (2) what sequence of actions is most likely to produce that condition; and (3) how ...the resources of the force [should] be applied to accomplish that sequence of actions."¹ It is in the decision process of how to best utilize limited resources that commanders and logisticians jointly practice the art of operational sustainment.

By focusing on operational sustainment in terms of (1) organization of the theater base, (2) establishment and adjustment of LOCs, (3) management of sustainment priorities, and (4) force expansion and reconstitution, the logistician is provided with a framework that can serve as a basis for further doctrinal development within each area. This focus is needed within the logistics community to both rediscover

and develop the sustainment techniques necessary to support campaigns in overseas theaters of war.

The study also pointed out a problem beyond its intended scope, but one that will merit careful future analysis. This deals with the tie in of strategic LOCs to operational level sustainment bases. The ineffectiveness of the strategic pipeline serving Rommel significantly contributed to his failure. The management and control of the strategic pipeline has a major impact on the effectiveness of operational sustainment.

There is a well known phenomenon that applies in most businesses, that the higher up one goes in an organization, the less one generally deals with the specific technical aspects of the business and the more one operates within the realm of management issues. Logistics works the same sort of action on tactical commanders. The higher the level which they command, the more they trade the fighting issues of the foxhole for the management issues of the logistical pipeline. Field Marshal Kesselring, in reflecting on his North Africa experience, stated, "The handling of the supply problems is of no less importance than operational or tactical command."² The ever increasing need for higher level commanders to focus on logistics in planning and conducting campaigns and major operations within a theater of war gives testimony to the premise that operational sustainment is fundamental to "defining the realm of the possible".

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